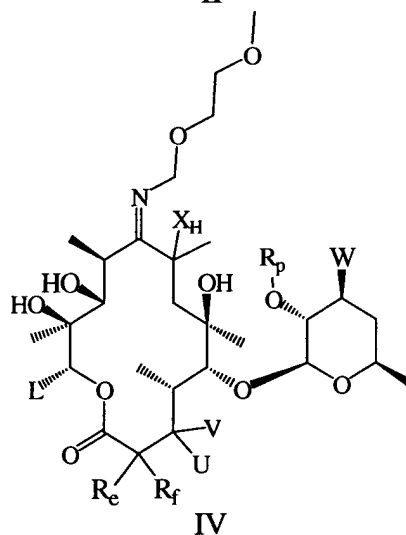
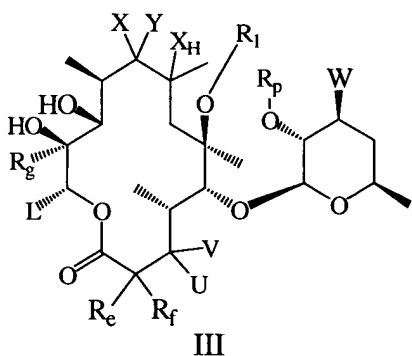
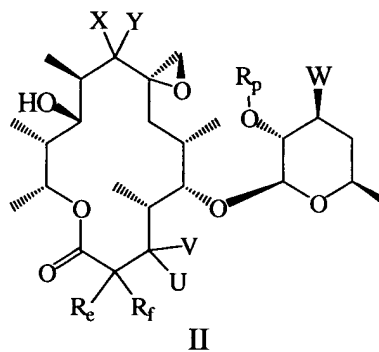
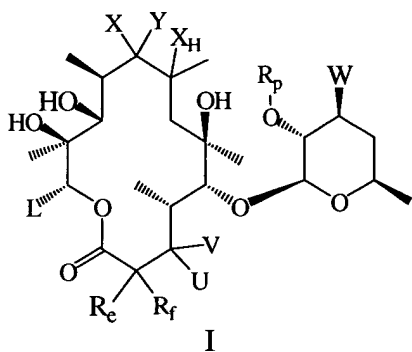
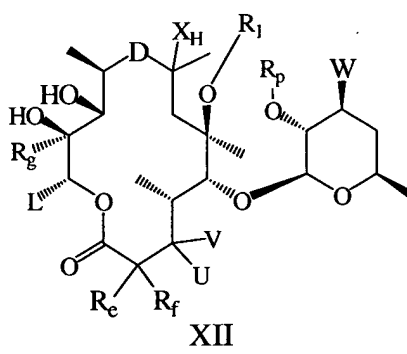
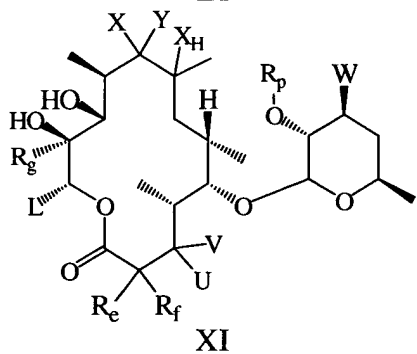
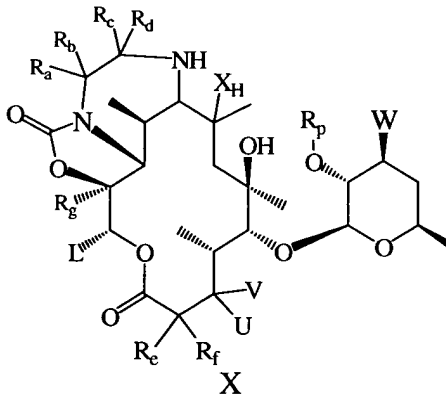
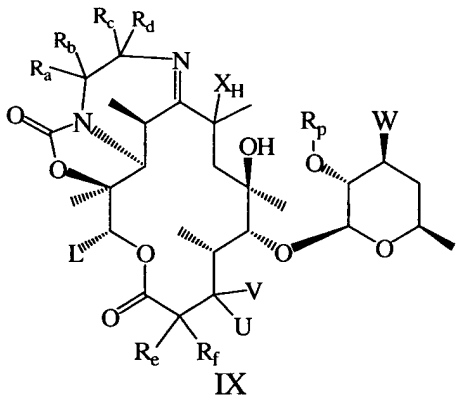
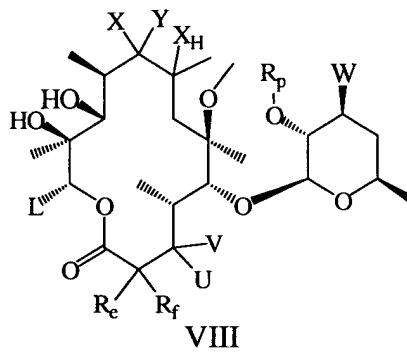
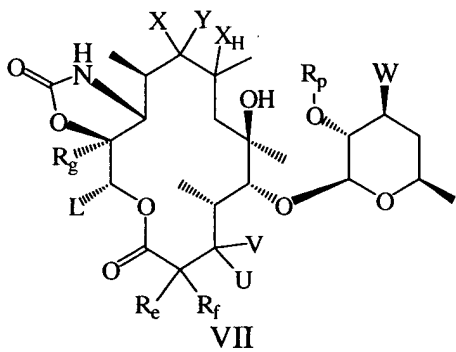
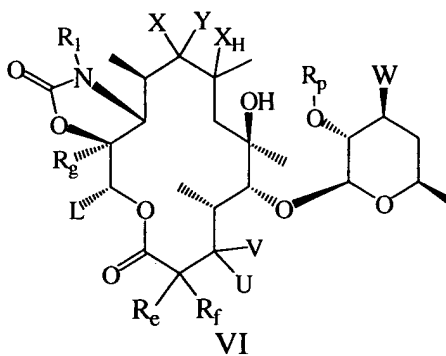
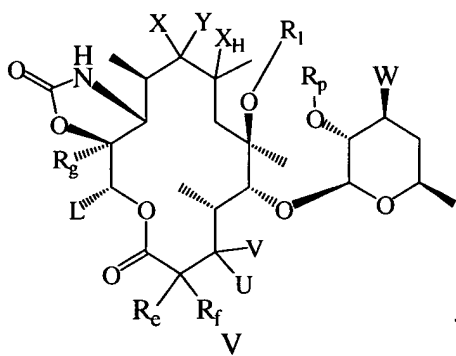
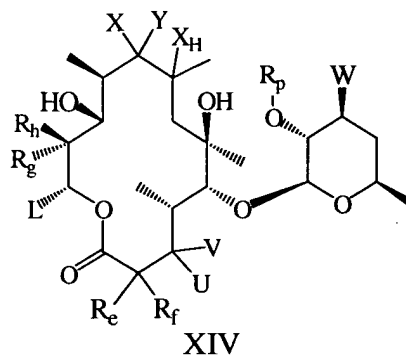
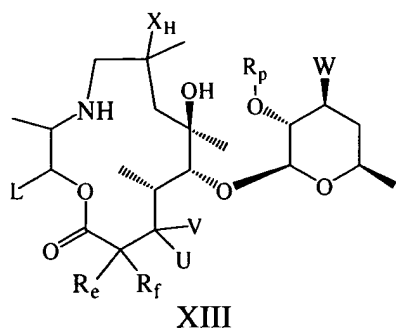


WHAT IS CLAIMED:

1. A process comprising the step of reacting a macrocyclic compound characterized by at least two nucleophilic moieties with a bridging component optionally in the presence of catalyst thereby achieving a bridged macrocyclic product.
2. The process of claim 1, wherein the macrocyclic compound is a macrolide antibiotic.
3. The process of claim 1, wherein the macrocyclic compound is an erythromycin derivative.
4. The process of claim 3, wherein the erythromycin derivative is azithromycin, desmethyl azithromycin, roxithromycin, clarithromycin, telithromycin, or cethromycin.
5. The process of claim 1, wherein the macrocyclic compound is selected from:







wherein

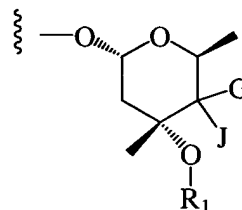
D is selected from $-\text{NHCH}_2-$, $-\text{NHCHR}_1-$, $-\text{NHCR}_3\text{R}_4-$, $-\text{NR}_1\text{CH}_2-$, $-\text{NHC(O)-}$, $-\text{NR}_1\text{C(O)-}$, $-\text{NHC(S)-}$, or $-\text{NR}_1\text{C(S)-}$;

Each R_1 is independently selected from hydrogen, deuterium, a substituted or unsubstituted, saturated or unsaturated aliphatic group, a substituted or unsubstituted, saturated or unsaturated alicyclic group, a substituted or unsubstituted aromatic group, a substituted or unsubstituted heteroaromatic group, saturated or unsaturated heterocyclic group;

R_3 and R_4 is independently selected from the group consisting of hydrogen, acyl, a substituted or unsubstituted, saturated or unsaturated aliphatic group, a substituted or unsubstituted, saturated or unsaturated alicyclic group, a substituted or unsubstituted aromatic group, a substituted or unsubstituted heteroaromatic group, saturated or unsaturated heterocyclic group; or can be taken together with the nitrogen atom to which they are attached to form a substituted or unsubstituted heterocyclic or heteroaromatic ring;

L is selected from hydrogen, a substituted or unsubstituted, saturated or unsaturated aliphatic group, a substituted or unsubstituted, saturated or unsaturated alicyclic group, a substituted or unsubstituted aromatic group, a substituted or unsubstituted heteroaromatic group, or a substituted or unsubstituted heterocyclic group;

one of U or V is hydrogen and the other is independently selected from the group



consisting of: R_1 , OR_1 , OC(O)R_1 , $\text{OC(O)NR}_3\text{R}_4$, $\text{S(O)}_n\text{R}_1$, or other carbohydrate or sugar moiety;

or U and V, taken together with the carbon atom to which they are attached, are C=O ;

or UV and R_eR_f , taken together with the carbon atoms to which they are attached, are –
 $C(R_1)=CH-$;

one of J or G is hydrogen and the other is selected from: R_1 , OR_1 , or NR_3R_4 ;

5 or J and G, taken together with the carbon atom to which they are attached, are selected
 from: $C=O$, $C=NR_1$, $C=NOR_1$, $C=NO(CH_2)_mR_1$, $C=NNHR_1$, $C=NNHCOR_1$, $C=NNHCONR_3R_4$,
 $C=NNHS(O)_nR_1$, or $C=N-N=CHR_1$;

R_a , R_b , R_c , and R_d are independently selected from $-R_1$, $-OR_1$, $-S(O)_nR_1$, $-C(O)OR_1$, $-$
 $OC(O)R_1$, $-OC(O)OR_1$, $-C(O)R_1$, $-C(O)NH-R_1$, $-NHC(O)-R_1$, $-N(R_3)(R_4)$, $-NHC(O)-OR_1$, $-$
 $NHC(O)NH-R_1$, or $-OC(O)NH-R_1$;

10 or R_a and R_b , R_a and R_c , R_a and R_d , R_b and R_c , R_b and R_d , or R_c and R_d , taken together
 with the carbon atom or atoms to which they are attached, are selected from substituted or
 unsubstituted alicyclic or substituted or unsubstituted heterocyclic;

one of R_e and R_f is selected from hydrogen or methyl, and the other is independently
 selected from halogen, deuterium, or R_1 .

15 R_h is hydroxy;

R_g is selected from hydrogen, a substituted or unsubstituted, saturated or unsaturated
 aliphatic group, a substituted or unsubstituted, saturated or unsaturated alicyclic group, a
 substituted or unsubstituted aromatic group, a substituted or unsubstituted heteroaromatic group,
 or a substituted or unsubstituted heterocyclic group;

20 or R_g and R_h , taken together with the carbon atom to which they are attached, are selected
 from an epoxide, a carbonyl, a substituted or unsubstituted olefin, a substituted or unsubstituted
 alicyclic, a substituted or unsubstituted heterocyclic;

W is NR_3R_4 ;

25 one of X and Y is hydrogen, substituted or unsubstituted aliphatic, and the other is
 independently selected from: hydroxy, $-SH$, $-NH_2$, or $-NR_1H$;

or X and Y, taken together with the carbon atom to which they are attached, are selected
 from: $C=O$, $C=NR_1$, $C=NOR_1$, $C=NO(CH_2)_mR_1$, $C=NNHR_1$, $C=NNHCOR_1$, $C=NNHCONR_3R_4$,
 $C=NNHS(O)_nR_1$, or $C=N-N=CHR_1$;

R_p is selected from hydrogen, acyl, silane, or a hydroxy protecting group;

30 X_H is selected from hydrogen or halogen;

m is an integer; and

n is 0, 1, or 2.

6. The process of claim 4, wherein, for the macrocyclic compound, L is ethyl.
7. The process of claim 4, wherein, for the macrocyclic compound, one of X and Y is hydrogen and the other is selected from hydroxy or amino.
- 5 8. The process of claim 4, wherein, for the macrocyclic compound, X and Y, taken together with the carbon atom to which they are attached, are selected from C=O, C=NH, C=N-OH, or C=N-NH₂;
9. The process of claim 4, wherein, for the macrocyclic compound, R_g is methyl.
- 10 10. The process of claim 4, wherein, for the macrocyclic compound, R_e is hydrogen and R_f is selected from methyl, allyl, or propargyl.
11. The process of claim 4, wherein, for the macrocyclic compound, one of U and V is hydrogen and the other is selected from -OH or -O-cladinose.
12. The process of claim 4, wherein, for the macrocyclic compound, U and V, taken together with the carbon atom to which they are attached, are C=O.
- 15 13. A bridged macrocyclic product produced by the process of claim 1.